| Material Guide |  | Hardness | SFM | Inches per Tooth (IPT) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1/8 |  | 3/16 |  | 1/4 |  | 3/8 |  | 1/2 |  | 3/4 |  | 1 |  |
|  |  | Slot |  | Rgh | Slot | Rgh | Slot | Rgh | Slot | Rgh | Slot | Rgh | Slot | Rgh | Slot | Rgh |
| Carbon Steel | 10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36 |  | $<75 \mathrm{HRB}$ $75-98 \mathrm{HRB}$ $21-36 \mathrm{HRC}$ | $\begin{aligned} & 455 \\ & 445 \\ & 400 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0007 \\ & .0005 \\ & .0003 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0011 \\ & .0009 \\ & .0006 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0010 \\ & .0007 \\ & .0005 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0017 \\ & .0013 \\ & .0008 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0013 \\ & .0009 \\ & .0006 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0023 \\ & .0017 \\ & .0011 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0019 \\ & .0014 \\ & .0009 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0034 \\ & .0025 \\ & .0016 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0025 \\ & .0018 \\ & .0012 \end{aligned}$ | $\begin{aligned} & .0044 \\ & .0032 \\ & .0021 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0036 \\ & .0026 \\ & .0017 \end{aligned}$ | $\begin{aligned} & \hline .0064 \\ & .0047 \\ & .0030 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0045 \\ & .0033 \\ & .0021 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0082 \\ & .0060 \\ & .0039 \end{aligned}$ |
| Low Alloy Steel | $\begin{aligned} & \text { 13XX, 41XX, 43XX, 51XX, } \\ & 86 X X, 93 X X \end{aligned}$ |  | $\begin{array}{r} 75-98 \mathrm{HRB} \\ 21-36 \mathrm{HRC} \\ 36-50 \mathrm{HRC} \\ >50 \mathrm{HRC} \end{array}$ | $\begin{aligned} & 390 \\ & 340 \\ & 260 \\ & 155 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0004 \\ & .0003 \\ & .0003 \\ & .0002 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0007 \\ & .0005 \\ & .0005 \\ & .0004 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0006 \\ & .0005 \\ & .0004 \\ & .0003 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0011 \\ & .0008 \\ & .0007 \\ & .0006 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0008 \\ & .0006 \\ & .0005 \\ & .0004 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0015 \\ & .0011 \\ & .0009 \\ & .0007 \end{aligned}$ | $\begin{aligned} & .0012 \\ & .0009 \\ & .0008 \\ & .0006 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0022 \\ & .0016 \\ & .0014 \\ & .0011 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0016 \\ & .0012 \\ & .0010 \\ & .0008 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0028 \\ & .0021 \\ & .0018 \\ & .0014 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0023 \\ & .0017 \\ & .0015 \\ & .0012 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0041 \\ & .0030 \\ & .0026 \\ & .0021 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0029 \\ & .0021 \\ & .0019 \\ & .0015 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0052 \\ & .0039 \\ & .0034 \\ & .0027 \end{aligned}$ |
| Tool Steel | A2, H13, L6, P20, S7 | $\begin{array}{r} 75-98 \mathrm{HRB} \\ 21-36 \mathrm{HRC} \\ 36-50 \mathrm{HRC} \\ >50 \mathrm{HRC} \end{array}$ | $\begin{aligned} & \hline 340 \\ & 250 \\ & 145 \\ & 85 \end{aligned}$ | $\begin{aligned} & .0004 \\ & .0003 \\ & .0003 \\ & .0002 \end{aligned}$ | $\begin{aligned} & .0007 \\ & .0006 \\ & .0005 \\ & .0004 \end{aligned}$ | $\begin{aligned} & .0006 \\ & .0005 \\ & .0004 \\ & .0003 \end{aligned}$ | $\begin{aligned} & .0011 \\ & .0009 \\ & .0007 \\ & .0006 \end{aligned}$ | $\begin{aligned} & .0008 \\ & .0007 \\ & .0005 \\ & .0004 \end{aligned}$ | $\begin{aligned} & .0015 \\ & .0011 \\ & .0009 \\ & .0007 \end{aligned}$ | $\begin{aligned} & .0012 \\ & .0010 \\ & .0008 \\ & .0006 \end{aligned}$ | $\begin{aligned} & .0022 \\ & .0017 \\ & .0014 \\ & .0011 \end{aligned}$ | $\begin{aligned} & .0016 \\ & .0013 \\ & .0010 \\ & .0008 \end{aligned}$ | $\begin{aligned} & .0028 \\ & .0022 \\ & .0017 \\ & .0014 \end{aligned}$ | $\begin{aligned} & .0023 \\ & .0018 \\ & .0014 \\ & .0012 \end{aligned}$ | $\begin{aligned} & .0041 \\ & .0032 \\ & .0025 \\ & .0021 \end{aligned}$ | $\begin{aligned} & .0029 \\ & .0023 \\ & .0018 \\ & .0015 \end{aligned}$ | $\begin{aligned} & .0052 \\ & .0041 \\ & .0032 \\ & .0026 \end{aligned}$ |
| Specialty Steel | 300M, Invar 36, Kovar, Maraging 200, Maraging 250 , Maraging 300 , Maraging 350 | $\begin{array}{r} <75 \text { HRB } \\ 75-98 \mathrm{HRB} \\ 21-36 \mathrm{HRC} \\ 36-50 \mathrm{HRC} \\ >50 \mathrm{HRC} \end{array}$ | $\begin{aligned} & \hline 290 \\ & 255 \\ & 175 \\ & 150 \\ & 55 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0006 \\ & .0004 \\ & .0003 \\ & .0003 \\ & .0002 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0010 \\ & .0007 \\ & .0006 \\ & .0005 \\ & .0003 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0008 \\ & .0006 \\ & .0005 \\ & .0004 \\ & .0003 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0015 \\ & .0010 \\ & .0009 \\ & .0008 \\ & .0005 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0011 \\ & .0007 \\ & .0007 \\ & .0006 \\ & .0004 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0019 \\ & .0013 \\ & .0012 \\ & .0011 \\ & .0007 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0016 \\ & .0011 \\ & .0010 \\ & .0009 \\ & .0005 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0029 \\ & .0020 \\ & .0017 \\ & .0016 \\ & .0010 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0021 \\ & .0014 \\ & .0013 \\ & .0011 \\ & .0007 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0037 \\ & .0025 \\ & .0023 \\ & .0020 \\ & .0012 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0030 \\ & .0020 \\ & .0018 \\ & .0016 \\ & .0010 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0053 \\ & .0037 \\ & .0033 \\ & .0029 \\ & .0018 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0038 \\ & .0026 \\ & .0023 \\ & .0021 \\ & .0013 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0068 \\ & .0047 \\ & .0042 \\ & .0038 \\ & .0023 \\ & \hline \end{aligned}$ |
| Austenitic Stainless Steel | Nitronic 50 , Nitronic 60 , 301, 303, 304, 304L, Incoloy 27-7MO, 316, 316L, 321, 347 | $\begin{aligned} & 75-98 \text { HRB } \\ & 21-36 \text { HRC } \\ & 36-50 \text { HRC } \end{aligned}$ | $\begin{aligned} & 265 \\ & 225 \\ & 180 \end{aligned}$ | . 0004 <br> . 0004 <br> 0003 | $\begin{aligned} & .0007 \\ & .0006 \\ & .0005 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0006 \\ & .0006 \\ & .0004 \end{aligned}$ | . 0011 <br> .0010 <br> 0008 | $\begin{aligned} & .0008 \\ & .0007 \\ & .0006 \end{aligned}$ | $\begin{aligned} & .0014 \\ & .0013 \\ & .0010 \end{aligned}$ | $\begin{aligned} & .0012 \\ & .0011 \\ & .0009 \end{aligned}$ | $\begin{aligned} & .0021 \\ & .0019 \\ & .0015 \end{aligned}$ | $\begin{aligned} & .0015 \\ & .0014 \\ & .0011 \end{aligned}$ | $\begin{aligned} & .0027 \\ & .0025 \\ & .0020 \end{aligned}$ | $\begin{aligned} & .0022 \\ & .0020 \\ & .0016 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0040 \\ & .0036 \\ & .0029 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0028 \\ & .0025 \\ & .0020 \end{aligned}$ | $\begin{aligned} & .0051 \\ & .0046 \\ & .0037 \end{aligned}$ |
| $\begin{array}{\|c\|} \text { Martensitic \& } \\ \text { Ferritic Stainless } \\ \text { Steel } \end{array}$ | $\begin{aligned} & 403,410,416,420,440, \\ & 430,446 \end{aligned}$ | $\begin{aligned} & 75-98 \text { HRB } \\ & 21-36 \text { HRC } \end{aligned}$ | $\begin{aligned} & 300 \\ & 280 \end{aligned}$ | $\begin{aligned} & .0004 \\ & .0004 \end{aligned}$ | $\begin{aligned} & .0007 \\ & .0006 \end{aligned}$ | $\text { . } 0006$ | $\text { . } 0011 .$ | $\begin{aligned} & .0008 \\ & .0007 \end{aligned}$ | $\begin{aligned} & .0015 \\ & .0013 \end{aligned}$ | $\begin{aligned} & .0012 \\ & .0011 \end{aligned}$ | $\begin{aligned} & .0022 \\ & .0019 \end{aligned}$ | $\text { . } 0016$ | $\begin{aligned} & .0028 \\ & .0024 \end{aligned}$ | $\begin{aligned} & .0023 \\ & .0020 \end{aligned}$ | $\begin{aligned} & .0041 \\ & .0035 \end{aligned}$ |  | $\begin{aligned} & .0052 \\ & .0045 \end{aligned}$ |
| PH Stainless Steel | 15-5, 17-4, Carpenter 450, Carpenter 465 | 21-36 HRC <br> 36-50 HRC | $\begin{aligned} & 200 \\ & 145 \end{aligned}$ | $\begin{aligned} & .0003 \\ & .0003 \end{aligned}$ | $\begin{aligned} & .0005 \\ & .0005 \end{aligned}$ | $\begin{aligned} & .0005 \\ & .0004 \end{aligned}$ | $\text { . } 0008$ | $\begin{aligned} & .0006 \\ & .0005 \end{aligned}$ | $\begin{aligned} & .0011 \\ & .0009 \end{aligned}$ | $\begin{aligned} & .0009 \\ & .0008 \end{aligned}$ | $\begin{aligned} & .0016 \\ & .0014 \end{aligned}$ | $.0012$ | $\begin{aligned} & .0021 \\ & .0018 \end{aligned}$ | $\begin{aligned} & .0017 \\ & .0014 \end{aligned}$ | $\begin{aligned} & .0030 \\ & .0026 \end{aligned}$ | $\begin{aligned} & .0021 \\ & .0018 \end{aligned}$ | $\begin{aligned} & .0038 \\ & .0033 \end{aligned}$ |
| Gray Cast Iron | SAE J431, ASTM A48 | $\begin{aligned} & \hline 75-98 \mathrm{HRB} \\ & 21-36 \mathrm{HRC} \\ & \hline \end{aligned}$ | $\begin{aligned} & 410 \\ & 370 \end{aligned}$ | $\begin{aligned} & .0007 \\ & .0004 \end{aligned}$ | $\begin{aligned} & .0012 \\ & .0006 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0010 \\ & .0005 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0018 \\ & .0010 \end{aligned}$ | $\begin{aligned} & .0013 \\ & .0007 \end{aligned}$ | $\begin{aligned} & .0023 \\ & .0013 \end{aligned}$ | $\begin{aligned} & \hline .0020 \\ & .0011 \end{aligned}$ | $\begin{array}{r} .0035 \\ .0019 \\ \hline \end{array}$ | $\begin{aligned} & .0026 \\ & .0014 \end{aligned}$ | $\begin{aligned} & .0045 \\ & .0025 \end{aligned}$ | $\begin{aligned} & .0037 \\ & .0020 \end{aligned}$ | $\begin{aligned} & .0066 \\ & .0036 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0047 \\ & .0025 \end{aligned}$ | $\begin{aligned} & \hline .0084 \\ & .0046 \\ & \hline \end{aligned}$ |
| $\begin{aligned} & \text { Malleable Cast } \\ & \text { Iron } \end{aligned}$ | ASTM A47, ASTM A220, ASTM A602 | $\begin{aligned} & \hline 75-98 \mathrm{HRB} \\ & 21-36 \mathrm{HRC} \\ & \hline \end{aligned}$ | $\begin{aligned} & 345 \\ & 335 \end{aligned}$ | $\begin{aligned} & .0004 \\ & .0004 \end{aligned}$ | $\begin{aligned} & .0008 \\ & .0007 \end{aligned}$ | $\begin{aligned} & .0006 \\ & .0005 \end{aligned}$ | $\begin{aligned} & .0011 \\ & .0010 \end{aligned}$ | $\begin{aligned} & .0008 \\ & .0007 \end{aligned}$ | $\begin{aligned} & .0015 \\ & .0013 \end{aligned}$ | $\begin{aligned} & \hline .0012 \\ & .0011 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0022 \\ & .0019 \end{aligned}$ | $\begin{aligned} & \hline .0016 \\ & .0014 \end{aligned}$ | $\begin{aligned} & .0029 \\ & .0025 \end{aligned}$ | $\begin{aligned} & .0023 \\ & .0020 \end{aligned}$ | $\begin{aligned} & .0042 \\ & .0036 \end{aligned}$ | $\begin{aligned} & .0030 \\ & .0026 \end{aligned}$ | $\begin{aligned} & .0054 \\ & .0046 \end{aligned}$ |
| Nodular (Ductile) Cast Iron | ASTM A536, ASTM 897 | $\begin{aligned} & \hline 75-98 \mathrm{HRB} \\ & 21-36 \mathrm{HRC} \\ & 36-50 \mathrm{HRC} \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 310 \\ & 260 \\ & 135 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0005 \\ & .0003 \\ & .0002 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0008 \\ & .0005 \\ & .0003 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0007 \\ & .0004 \\ & .0003 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0012 \\ & .0008 \\ & .0005 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0009 \\ & .0006 \\ & .0004 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0015 \\ & .0010 \\ & .0007 \\ & \hline \end{aligned}$ | $\begin{array}{r} \hline .0013 \\ .0009 \\ .0005 \\ \hline \end{array}$ | $\begin{aligned} & .0023 \\ & .0015 \\ & .0010 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0017 \\ & .0011 \\ & .0007 \\ & \hline \end{aligned}$ | $\begin{array}{r} .0030 \\ .0020 \\ .0013 \\ \hline \end{array}$ | $\begin{aligned} & .0024 \\ & .0016 \\ & .0010 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0043 \\ & .0029 \\ & .0018 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0031 \\ & .0020 \\ & .0013 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0056 \\ & .0037 \\ & .0023 \\ & \hline \end{aligned}$ |
| Pure Nickel | Nickel 200, Nickel 201 | $\begin{array}{r} <75 \mathrm{HRB} \\ 75-98 \mathrm{HRB} \\ \hline \end{array}$ | $\begin{aligned} & 285 \\ & 250 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0006 \\ & .0005 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0010 \\ & .0008 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0008 \\ & .0007 \\ & \hline \end{aligned}$ | $\begin{array}{r} .0015 \\ .0013 \\ \hline \end{array}$ | $\begin{aligned} & .0011 \\ & .0009 \\ & \hline \end{aligned}$ | $\begin{array}{r} .0020 \\ .0017 \\ \hline \end{array}$ | $\begin{aligned} & .0017 \\ & .0014 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0030 \\ & .0025 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0022 \\ & .0018 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0038 \\ & .0032 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .0031 \\ & .0026 \\ & \hline \end{aligned}$ | $\begin{array}{r} .0056 \\ .0047 \\ \hline \end{array}$ | $\begin{array}{r} .0040 \\ .0033 \\ \hline \end{array}$ | $\begin{aligned} & .0072 \\ & .0060 \\ & \hline \end{aligned}$ |
| Nickel Alloy | Hastelloy C-22, Inconel 625, Waspaloy, René 41, Inconel 718, Incoloy 20 | $\begin{aligned} & 75-98 \text { HRB } \\ & 21-36 \text { HRC } \\ & 36-50 \text { HRC } \end{aligned}$ | $\begin{aligned} & 80 \\ & 75 \\ & 70 \end{aligned}$ | $\begin{aligned} & .0003 \\ & .0003 \\ & .0002 \end{aligned}$ | $\begin{aligned} & .0005 \\ & .0005 \\ & .0004 \end{aligned}$ | $\begin{aligned} & .0004 \\ & .0004 \\ & .0004 \end{aligned}$ | $\begin{aligned} & .0008 \\ & .0007 \\ & \hline 0006 \end{aligned}$ | $\begin{aligned} & .0006 \\ & .0006 \\ & .0005 \end{aligned}$ | $\begin{aligned} & .0010 \\ & .0010 \\ & .0008 \end{aligned}$ | $\text { . } 0008$ | .0015 <br> . 0015 <br> . 0013 | .0011 <br> . 0011 <br> . 0009 | $\begin{aligned} & .0020 \\ & .0019 \\ & .0016 \end{aligned}$ | $\text { } 00016 .$ | $\begin{aligned} & .0029 \\ & .0027 \\ & .0023 \end{aligned}$ | $\begin{aligned} & .0020 \\ & .0019 \\ & .0017 \end{aligned}$ | $\begin{aligned} & .0036 \\ & .0035 \\ & .0030 \end{aligned}$ |
| Pure Titanium | Ti Grade 1, Ti Grade 2, Ti Grade 3, Ti Grade 4, Ti Grade 7, Ti Grade 12 | $\begin{array}{r} <75 \mathrm{HRB} \\ 75-98 \mathrm{HRB} \\ 21-36 \mathrm{HRC} \end{array}$ | $\begin{aligned} & 300 \\ & 275 \\ & 250 \end{aligned}$ | $\begin{aligned} & .0008 \\ & .0007 \\ & .0005 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0014 \\ & .0012 \\ & .0009 \end{aligned}$ | $\begin{aligned} & .0012 \\ & .0010 \\ & .0007 \end{aligned}$ | $\begin{aligned} & .0021 \\ & .0018 \\ & .0013 \end{aligned}$ | $\begin{aligned} & .0015 \\ & .0013 \\ & .0010 \end{aligned}$ | $\begin{aligned} & .0027 \\ & .0023 \\ & .0017 \end{aligned}$ | $\begin{aligned} & .0023 \\ & .0019 \\ & .0014 \end{aligned}$ | $\begin{aligned} & .0041 \\ & .0034 \\ & .0026 \end{aligned}$ | $\begin{aligned} & .0030 \\ & .0025 \\ & .0019 \end{aligned}$ | $\begin{aligned} & .0053 \\ & .0045 \\ & .0033 \end{aligned}$ | $\begin{aligned} & .0043 \\ & .0036 \\ & .0027 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0077 \\ & .0065 \\ & .0049 \end{aligned}$ | $\begin{aligned} & .0055 \\ & .0046 \\ & .0034 \end{aligned}$ | $\begin{aligned} & .0099 \\ & .0083 \\ & .0062 \end{aligned}$ |
| Titanium Alloy | Ti 3Al-2.5V, Ti 6Al-4V, Ti $10 \mathrm{~V}-2 \mathrm{Fe}-3 \mathrm{Al}$ | $\begin{aligned} & 21-36 \text { HRC } \\ & 36-50 \text { HRC } \end{aligned}$ | $\begin{aligned} & 180 \\ & 160 \end{aligned}$ | $\begin{aligned} & .0004 \\ & .0004 \end{aligned}$ | $\begin{aligned} & .0007 \\ & .0006 \end{aligned}$ | $\begin{aligned} & \hline .0006 \\ & .0005 \end{aligned}$ | $\begin{aligned} & \hline .0010 \\ & .0009 \end{aligned}$ | $\begin{aligned} & .0008 \\ & .0007 \end{aligned}$ | $\begin{aligned} & .0014 \\ & .0012 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0011 \\ & .0010 \end{aligned}$ | $\begin{aligned} & .0020 \\ & .0019 \end{aligned}$ | $\begin{aligned} & .0015 \\ & .0014 \end{aligned}$ | $\begin{aligned} & .0026 \\ & .0024 \end{aligned}$ | $\begin{aligned} & .0021 \\ & .0019 \end{aligned}$ | $\begin{aligned} & .0038 \\ & .0035 \end{aligned}$ | $\begin{aligned} & .0027 \\ & .0025 \end{aligned}$ | $\begin{aligned} & .0049 \\ & .0045 \end{aligned}$ |
| Cobalt Alloy | ASTM F562, ASTM F90, ASTM F75, ASTM F799 | $\begin{aligned} & 75-98 \text { HRB } \\ & 21-36 \text { HRC } \\ & 36-50 \text { HRC } \end{aligned}$ | $\begin{gathered} 210 \\ 170 \\ 65 \end{gathered}$ | $\begin{aligned} & .0003 \\ & .0003 \\ & .0002 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0006 \\ & .0006 \\ & .0004 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0005 \\ & .0005 \\ & .0003 \end{aligned}$ | $\begin{aligned} & .0009 \\ & .0009 \\ & .0006 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0007 \\ & .0006 \\ & .0004 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0012 \\ & .0011 \\ & .0008 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0010 \\ & .0009 \\ & .0006 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0017 \\ & .0017 \\ & .0011 \end{aligned}$ | $\begin{aligned} & .0013 \\ & .0012 \\ & .0008 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0022 \\ & .0022 \\ & .0015 \end{aligned}$ | $\begin{aligned} & .0018 \\ & .0017 \\ & .0012 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0032 \\ & .0031 \\ & .0021 \end{aligned}$ | $\begin{aligned} & .0023 \\ & .0022 \\ & .0015 \\ & \hline \end{aligned}$ | $\begin{aligned} & .0041 \\ & .0040 \\ & .0027 \end{aligned}$ |


| Milling Process | Hardness | ADOC | RDOC |
| :---: | :---: | :---: | :---: |
| Slot (Full Slotting) | $<35$ HRC | $100 \%$-150\% Diameter | $100 \%$ Diameter |
|  | $\geq 35$ HRC | $100 \%$-125\% Diameter | $100 \%$ Diameter |
| Rgh (Traditional Roughing) | $<35$ HRC | Up to Max LOC | Up to 50\% Diameter |
|  | $\geq 35$ HRC | Up to Max LOC | Up to 50\% Diameter |

NOTES:
Hardness Scales: $\quad$ HRB $=$ Rockwell B
HRC = Rockwell C
IPT values shown are for $2.5 \times \mathrm{D}$ length of cut tools, and should be adjusted for longer or shorter lengths of cut. Values shown are for non-reached tools. For tools with reaches greater than 3xD, IPT should be reduced. For more accurate running parameters, please refer to Machining Advisor Pro.

